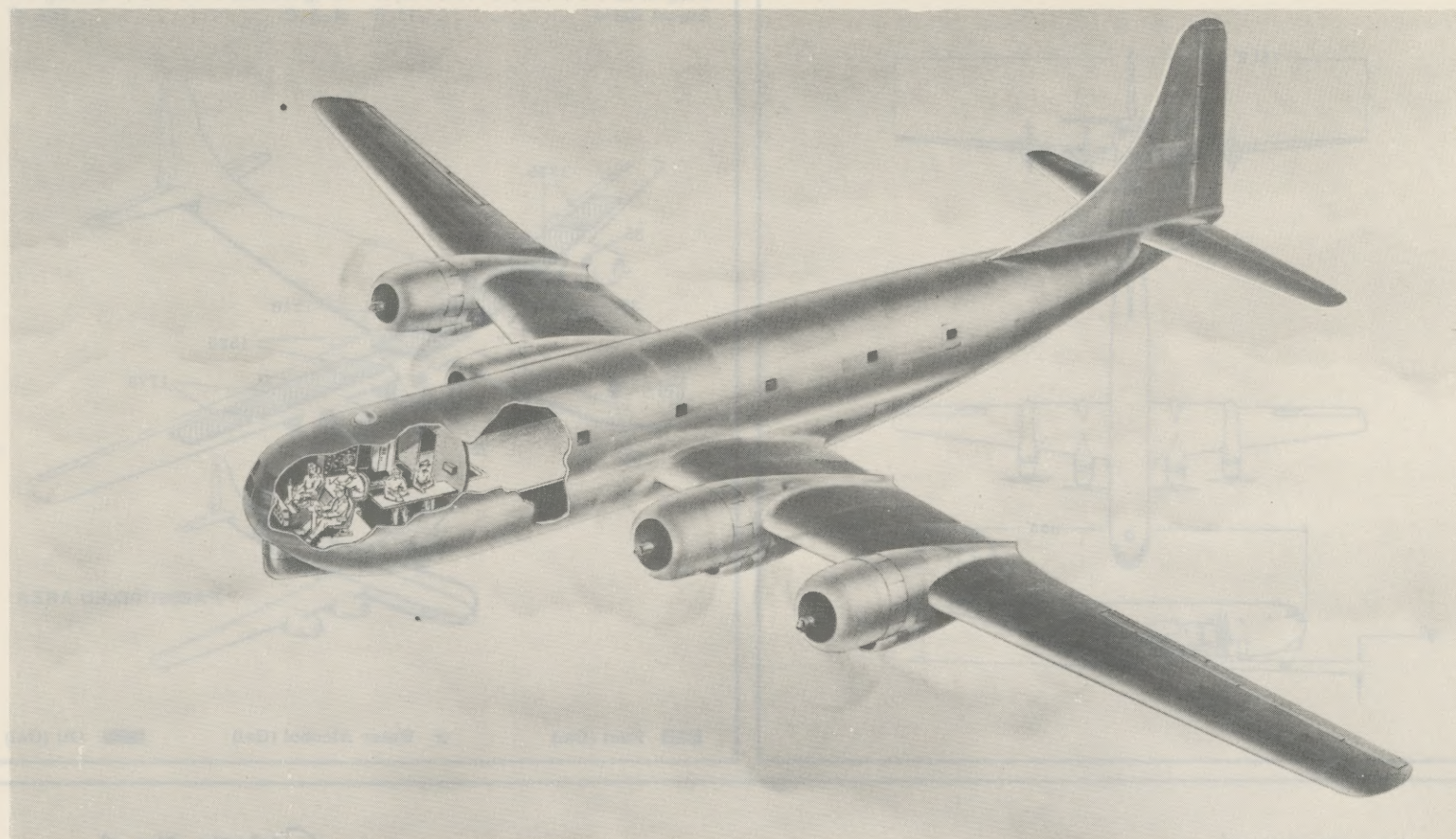


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SERVICE



## *Standard Aircraft Characteristics*

BY AUTHORITY OF  
THE SECRETARY  
OF THE AIR FORCE

**C-97A**  
**STRATOFREIGHTER**  
Boeing

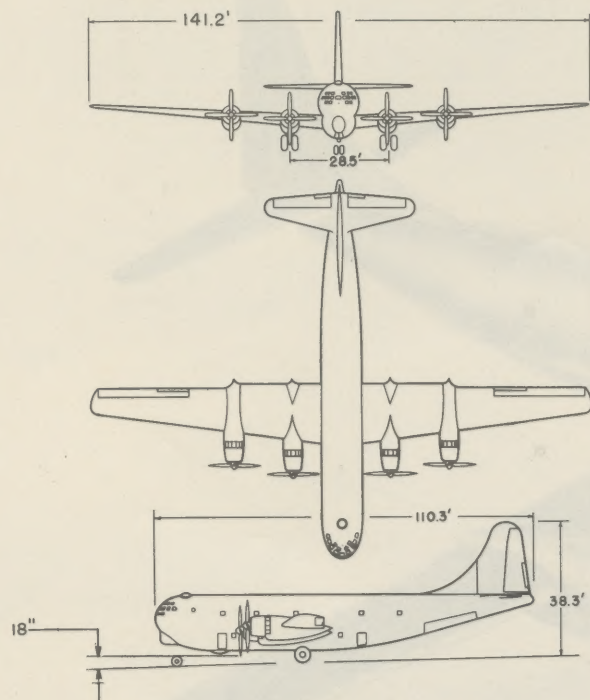
FOUR R-4360-65

PRATT & WHITNEY

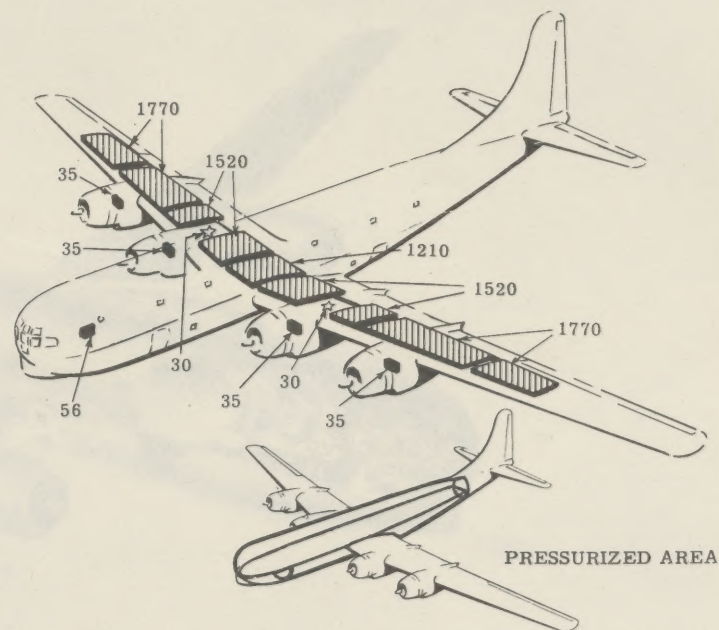
9 MAR 56

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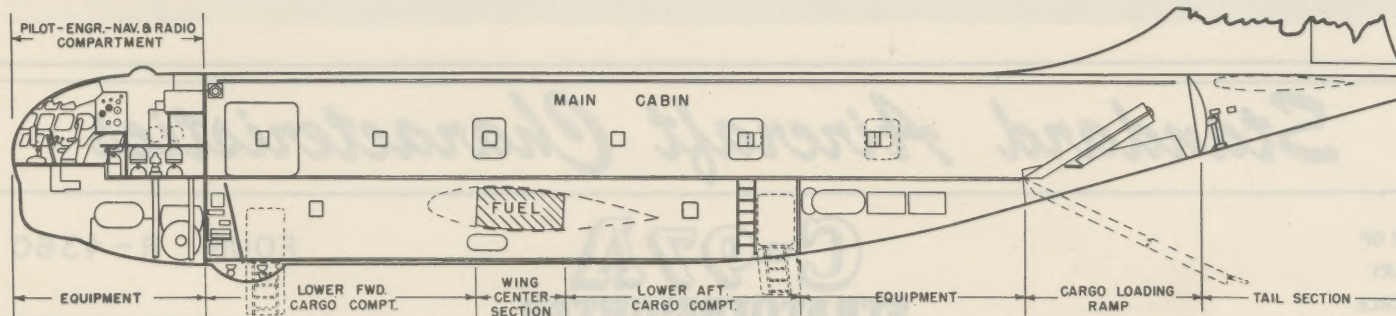
Wing Area . . . . . 1768.7 sq ft Wing Section . . . . . Boeing 117  
 Aspect Ratio . . . . . 11.5 M.A.C. . . . . 154.4"



■ Fuel (Gal)

☆ Water Alcohol (Gal)

■ Oil (Gal)



C-97A

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No. & Model. . . . .	(4) R-4360-65
Mfr. . . . .	Pratt & Whitney
Spec No. . . . .	A-7051F
Turbo Superch . . . . .	(4) BH-4
Turbo Mfr. . . . .	General Electric
Red. Gear Ratio . . . . .	0.375
Prop Mfr. . . . .	Hamilton Std
Blade Design No. . . . .	2J17B3-8W
Prop Type. . . . .	Hydra, F. F., Reverse
No. Blades . . . . .	4
Prop. Dia. . . . .	16'6"
Augmentation. . . . .	Water/Alcohol

	BHP	- RPM	- ALT	- MIN
T. O:	*3500-2700-S. L.	- 5		
	3250-2700-S. L.	- 5		
Mil:	*3500-2700-	500	- 30	
	3250-2700-	1000	- 30	
Nor:	2650-2550-	5500	-Cont	

\* Wet  
Note: Increased altitude performance is available through use of external turbo supercharging.

Wing	
Span . . . . .	141.2'
Incidence . . . . .	4°
Dihedral . . . . .	4°29'
Sweepback (LE) . . . . .	7°11'
Length . . . . .	110.3'
Height . . . . .	38.3'
Height (fin folded) . . . . .	26.6'
Tread . . . . .	28.5'
Prop. Grd Clearance . . . . .	18"

Navy Equivalent: None	Mfr's Model: 367-4-19
-----------------------	-----------------------

The principal mission of the C-97A is the transportation of an airborne task force complete with materiel or transportation of troops, cargo, or casualties.

The operating crew consists of pilot, co-pilot, navigator, radio operator, and engineer.

The fuselage is arranged to accommodate a variety of materiel in numerous combinations of airborne task force units. The size of the body and doors permit major items of materiel such as 2 1/2 ton 6 x 6 trucks with canvas cabs or T9-E1 light tanks to be loaded under their own power, carried fully assembled ready for immediate use at their destination.

Special design features include cabin pressurization, F-1 auto pilot, folding fin & rudder, wing & empennage thermal anti-icing, automatic cabin temperature control, power operated cargo hoist and reverse pitch propellers.

First flight: . . . . .	May 49
First acceptance: . . . . .	Jul 49
Production completed: . . . . .	Jan 51

<u>CARGO</u>	<u>CLEARANCES</u>
Max Load. . . . . 67,080 lb (Limited by strength)	MAIN CABIN:
Typical Items. . . . . 2 1/2 T. Truck (6 x 6)	Height. . . . . 8.0 ft
Items Carried Externally: Two, 3 or 4 Bladed Props.	Length. . . . . 63.6 ft
	Width(floor level). . . . . 8.8 ft
	MAIN LOADING DOOR:
	Length. . . . . 14.3 ft
	Width(fore/aft). . . . . 9.3/6.4 ft
	Height from Grd(fore/aft)
<u>CAPACITIES</u>	

Main Compartment (tot vol) 4309 cu ft  
Main Compartment (tot area) 559 sq ft  
Lower Compartment (tot vol) 1618 cu ft  
Lower Compartment (tot area) 222 sq ft  
Treadways (single axle load)

Electric Hoist with Snatch Block	12,700 lb
Electric Hoist with Hoisting Hook	5000 lb
	2500 lb

Loading Ramp (2 treads)  
 LIMIT FLOOR LOAD  
 Main Deck . . . . . 200 lb/sq ft  
 Lower Deck. . . . . 100 lb/sq ft

**MAIN CABIN:**  
Height . . . . . 8.0 ft  
Length . . . . . 63.6 ft  
Width(floor level) . . . . . 8.8 ft

**MAIN LOADING DOOR:**  
Length . . . . . 14.3 ft  
Width(fore/aft) . . . . . 9.3/6.4 ft  
Height from Grd(fore/aft)  
7.8/9.6 ft

\*CARGO DOOR (right side between  
sta. 246 & 326)

Height . . . . .	6.5 ft
Width . . . . .	6.7 ft

Crew . . . . .	5
Troops(max) . . . . .	**130
Litters(max) . . . . .	**79
Attendants . . . . .	4
*Effective on 38th production article and subsequent.	
**First 37 aircraft had provisions for 134 troops or 83 litters	

Loading	Lb	L. F.
Empty.....	76, 143(A)	
Basic.....	78, 241(C)	
Design.....	140,000	2.00
Combat.....	*94, 070	
Max T. O. (overload)		
	†175,000	2.00
Max T. O. (norm)	†150,000	2.48
Max Land.....	†160,000	2.00
(A) Actual		
(C) Calculated		
* For Basic Mission		
† Limited by strength		
‡ Limited by gear strength		
See page 6, note (b)		

Location	No. Tanks	Gal
Wgs, outbd . . . . .	2 . . . . .	3540
Wgs, inbd . . . . .	2 . . . . .	3040
Wgs, ctr . . . . .	1 . . . . .	1210
	Total	7790
Grade . . . . .		115/145
Specification . . . . .		MIL-F-5572

Nacelles . . . . .	4 . . . . .	140
Fus(Reserve) . . . . .	1 . . . . .	56
	Total	196
Grade . . . . .	S-1120;W-1100	
Specification . . . . .	MIL- 0-6082	
	WATER/ALCOHOL	
Nac, Inb'd . . . . .	2 . . . . .	60

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Loran . . . . . AN/APN-9A
Nav. Radar . . . . . *AN/APS-42
VHF Command . . . . . AN/ARC-49
MF Command (Rec'vr) . . . . . AN/ART-13A
MF Command . . . . . BC-454-B
Liaison . . . . . AN/ARC-8
Glide Path . . . . . AN/ARN-5A
Localizer . . . . . RC-103A
Radio Compass(2) . . . . . AN/ARN-7
Interphone . . . . . AN/AIC-3
IFF . . . . . SCR-695B
Marker Beacon . . . . . RC-193A
Radio Altimeter . . . . . SCR-718C
Radio Altimeter . . . . . AN/APN-
Marker Beacon . . . . . AN/ARN-12
Omni Range . . . . . AN/ARN-14
HF Command . . . . . SCR-274N
Emergency Keyer . . . . . AN/ARA-26
Interrogator . . . . . AN/APN-2B
* Space Provisions only

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# Loading and Performance—Typical Mission

C O N D I T I O N S			BASIC MISSION	NORMAL MISSION	DESIGN LOAD MISSION	MAX FUEL MISSION	MAX FUEL MISSION	HIGH ALTITUDE RANGE	FERRY RANGE
TAKE-OFF WEIGHT		(lb)	175,000 <sup>I</sup>	148,915 <sup>II</sup>	140,000 <sup>III</sup>	175,000 <sup>IV</sup>	150,000 <sup>V</sup>	150,000 <sup>VI</sup>	127,450 <sup>VII</sup>
Fuel at 6.0 lb/gal (grade 115/145)		(lb)	32,720	29,605	24,230	46,740	46,740	46,740	46,740
Payload (cargo)		(lb)	61,570	38,600	35,060	47,550	22,550	22,550	None
Wing loading		(lb/sq ft)	101.7	86.5	81.4	101.7	87.1	87.1	74.1
Stall speed (power off)		(kn)	108	99	96	108	99	99	92
Take-off ground run at SL	①	(ft)	6500	4070	3425	6500	4150	4150	2700
Take-off to clear 50 ft	①	(ft)	8150	5090	4275	8150	5200	5200	3350
Rate of climb at SL	③	(fpm)	555	920	1060	555	900	900	1270
Rate of climb at SL (one engine out)	②	(fpm)	340	680	805	340	660	660	1030
Time: SL to 10,000 ft	③	(min)	19.0	11.3	9.7	19.0	11.5	11.5	8.0
Time: SL to 20,000 ft	③	(min)	46.5	25.0	21.0	46.5	25.6	25.6	16.9
Service ceiling (100 fpm)	③	(ft)	22,500	28,700	30,000	22,500	28,500	28,500	31,800
Service ceiling (one engine out)	②	(ft)	5000	15,800	20,700	5000	15,300	15,300	26,800
COMBAT RANGE	④	(n. mi.)	1661	1800	1521	2595	3152	3026	3824
Average cruising speed		(kn)	204	196	194	202	191	238	176
Cruising altitude		(ft)	5000	5000	5000	5000	5000	20,000	5000
Total mission time		(hr)	8.15	9.18	7.85	12.86	16.48	12.78	21.72
COMBAT RADIUS	④	(n. mi.)	1000	1000	820	1507	1675	—	—
Average cruising speed		(kn)	182	180	178	183	181	—	—
Cruising altitude		(ft)	5000	5000	5000	5000	5000	—	—
Total mission time		(hr)	10.98	11.14	9.24	16.41	18.52	—	—
FIRST LANDING WEIGHT	⑤	(lb)	155,640	132,500	126,850	147,550	124,450	—	—
Ground roll at SL		(ft)	3380	2880	2750	3200	2700	—	—
Total from 50 ft		(ft)	4680	4050	3900	4460	3830	—	—
COMBAT WEIGHT	⑤	(lb)	94,070	93,900	91,790	100,000	101,900	106,530	83,705
Combat altitude		(ft)	5000	5000	5000	5000	5000	20,000	5000
Combat speed	②	(kn)	281	281	282	279	279	277	283
Combat climb	②	(fpm)	2225	2230	2300	2040	1980	1450	2560
Combat ceiling (500 fpm)	②	(ft)	34,500	34,550	34,900	33,450	33,100	32,350	36,400
Service ceiling (100 fpm)	③	(ft)	36,600	36,650	36,900	35,650	35,450	34,800	38,100
Service ceiling (one engine out)	③	(ft)	32,350	32,400	32,700	31,400	31,100	30,400	34,000
Take-off ground run at SL	①	(ft)	1350	1340	1275	1540	1600	—	—
Take-off to clear 50 ft	①	(ft)	1675	1660	1580	1910	2000	—	—
Max rate of climb at SL	②	(fpm)	2660	2665	2735	2485	2430	2300	2990
Max speed at 26,000 ft	②	(kn)	334	334	335	332	332	329	338
Basic speed at 25,000 ft	②	(kn)	331	331	332	329	329	327	335
LANDING WEIGHT	⑤	(lb)	83,000	82,840	82,562	83,705	83,705	106,530	83,705
Ground roll at SL		(ft)	1800	1800	1790	1810	1810	2310	1810
Total from 50 ft		(ft)	2690	2690	2680	2710	2710	3340	2710

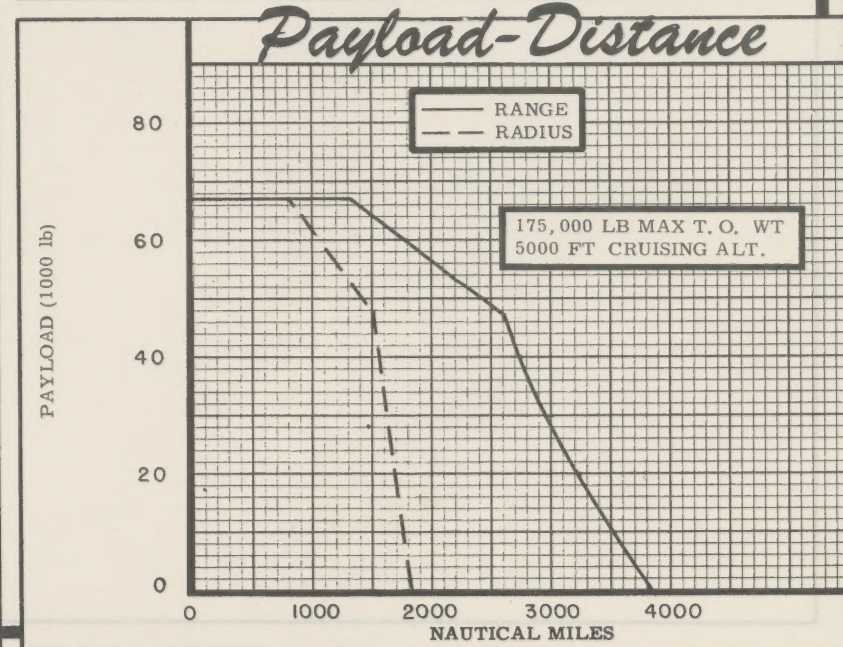
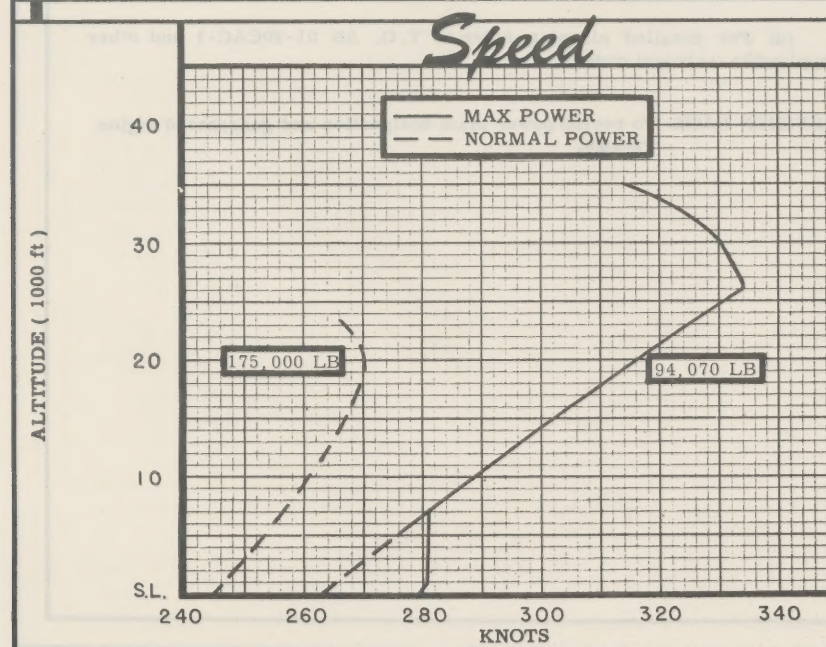
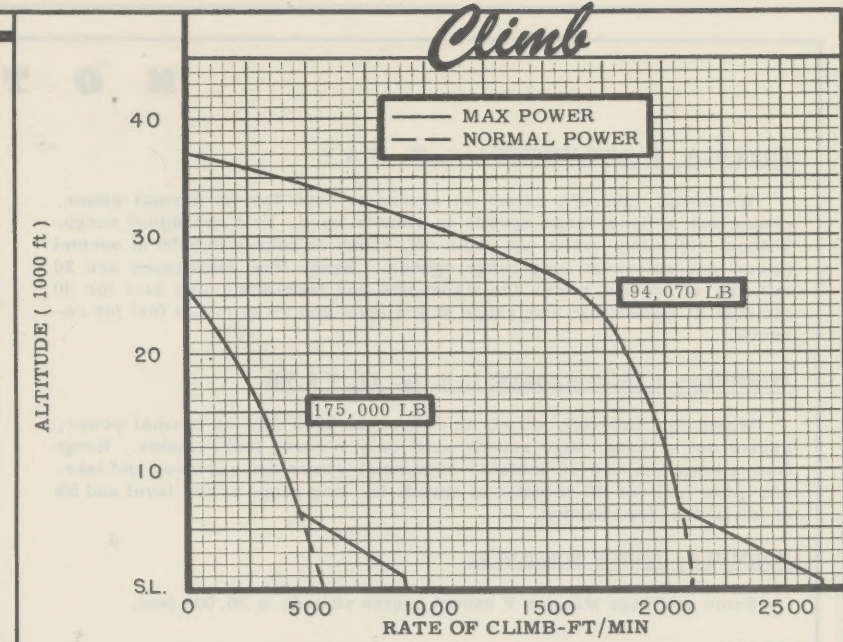
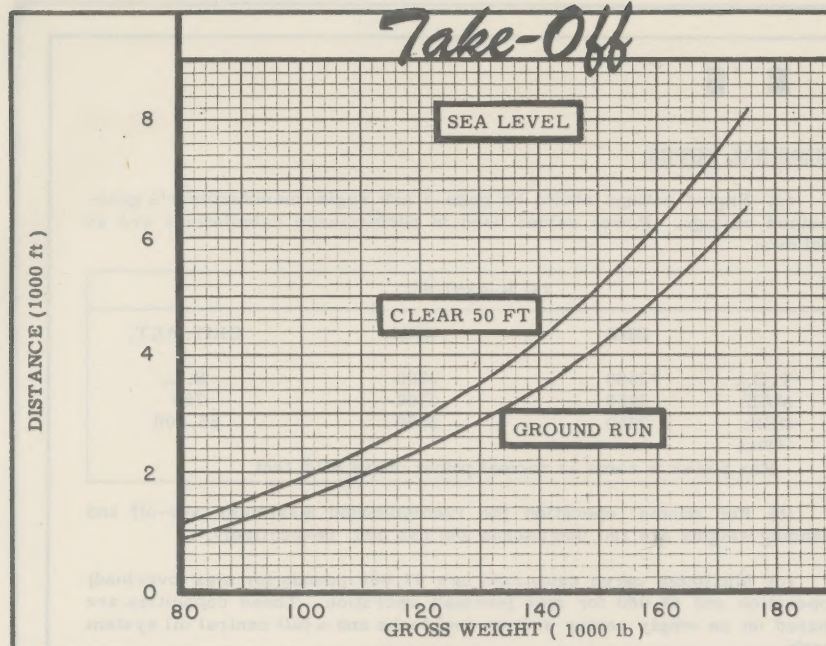
NOTES

- ① T. O. power  
 ② Max power  
 ③ Normal power (same as MAX above 6500 ft)  
 ④ Detailed descriptions of RADIUS

and RANGE missions are given on page 6  
 ⑤ For Radius Mission if radius is shown

## PERFORMANCE BASIS:

- (a) Data source: Flight Test  
 (b) Performance is based on powers shown on page 6



# NOTES

## FORMULA: RADIUS MISSION I, II, III, IV & V

Warm-up, take-off, climb on course to 5000 feet at normal power, cruise out at long range speeds to remote base, land and unload cargo. Without refueling, warm-up, take-off, climb on course to 5000 at normal power and return at long range speeds. Range free allowances are 20 minutes of normal power for warm-ups and take-offs, plus fuel for 30 minutes at speeds for long range at sea level and 5% of initial fuel for reserve.

## FORMULA: RANGE MISSIONS I, II, III, IV, V & VII

Warm-up, take-off, climb on course to 5000 feet at normal power, cruise out at long range speeds until only reserve fuel remains. Range free allowances are 10 minutes of normal power for warm-up and take-off, plus fuel for 30 minutes at speeds for long range at sea level and 5% of initial fuel for reserve.

## FORMULA: RANGE MISSION VI

Same as Range Mission V except cruise altitude is 20,000 feet.

## GENERAL NOTES:

(a) Engine ratings shown on page 3 are engine manufacturer's guaranteed ratings. Power values used in performance calculations are as follows:

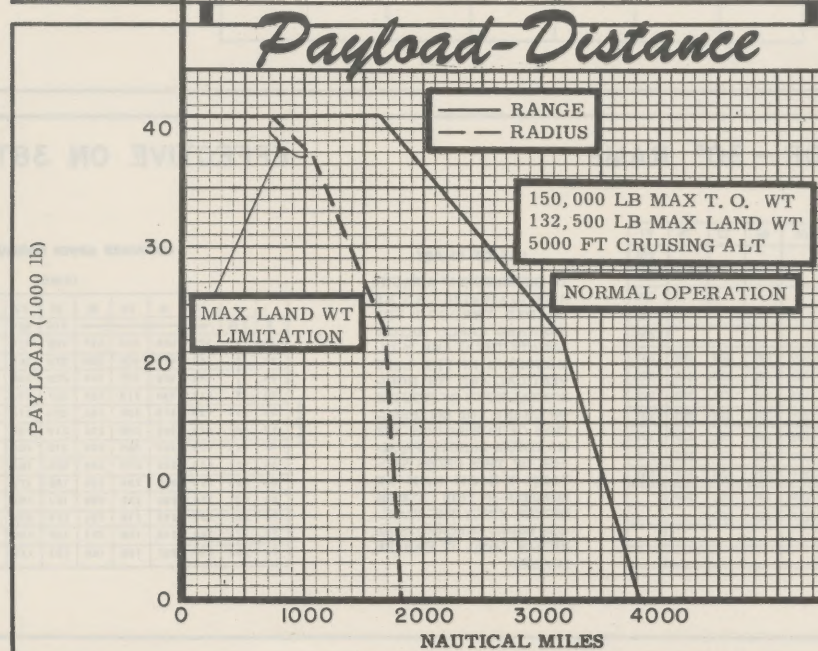
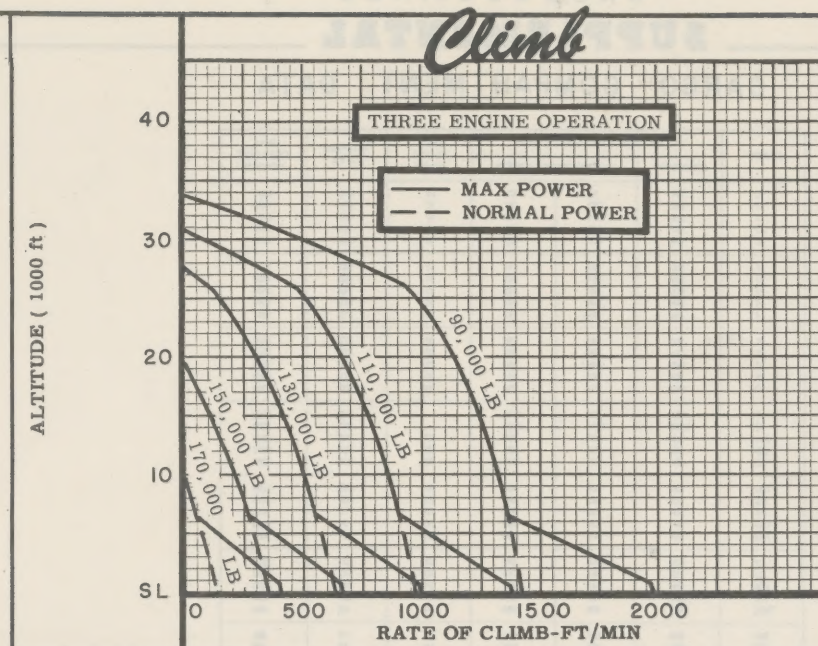
(4) R-4360-65			
	BHP	RPM	CRIT. ALT.
T.O.:	*3500	2700	S. L.
MAX:	3250	2700	750
NOR:	2650	2550	26,000
*Wet			
Max power is same as normal power above 6500 feet.			

(b) For normal operation the recommended maximum take-off and landing weights are 150,000 pounds and 132,500, respectively.

(c) Maximum cargo capacities are 67,080 pounds for max (overload) operation and 42,080 for max (normal) operation. These capacities are based on an empty center section fuel tanks and a full central oil system tank.

(d) For detailed planning refer to T.O. AN 01-20CAC-1 and other applicable technical orders.

REVISION BASIS: To revise power plant designation and guaranteed engine ratings.

**SUPPLEMENTAL**

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# SUPPLEMENTAL

## CARGO COMPARTMENT DATA

COMPT	INCHES FROM REFERENCE DATA			AREA FLOOR SQ FT	VOLUME CU FT	MAX CAPACITY POUNDS
	CENTROID	COMPARTMENT LIMITS				
A	140	50	230	81	620	2000
B	262	230	294	47	361	8500
C	326	294	358	47	361	8500
D	380	358	422	47	361	8500
E	433	422	483	45	344	8000
F	509	483	534	37	288	7500
G	560	534	585	37	288	7500
H	616	585	646	45	344	8000
I	670	646	694	35	271	7000
J	718	694	742	35	271	7000
K	766	742	790	35	271	7000
L	814	790	838	35	271	7000
M	862	838	886	35	271	7000
N	910	886	934	35	271	6500
O	964	934	994	44	336	5000
P	1004	994	1074	...	518	1500
Q	1120	1074	1166	...	357	1500
AA	140	50	230	15	300	1000
BB	262	230	294	20	218	2000
CC	326	294	358	30	210	3000
DD	380	358	422	31	209	3100
EE	433	422	483	27	202	2700
FF	500	483	534	10	70	1000
GG	560	534	585	10	70	1000
HH	616	585	646	24	204	2400
II	670	646	694	23	157	2300
JJ	718	694	742	23	147	2300
KK	766	742	790	24	131	2400
LL	814	790	838	10	115	500
MM	862	838	886	10	95	500
NN	910	886	934	10	74	500
OO	964	934	994	10	56	500

## LOADING DOOR - 30° RAMP

INCHES															
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	
6	730														730
12	730														730
18	730														730
24	730														730
30	730														730
36	730					730	630	630	620	620	610	594	578	559	545
42	730					730	630	500	495	494	485	472	455	440	350
48	730					730	620	495	408	402	394	382	371	359	263
54	730					730	620	494	402	339	331	323	313	301	305
60	730					730	610	485	394	331	287	280	271	239	157
66	730					730	594	472	382	323	280	245	237	185	113
72	730					730	578	455	371	313	271	237	200	151	100
78	730					730	569	440	359	303	239	185	151	100	
84	730					730	545	350	263	206	157	123	100		
90	730				730	500	300	196	150	106					
96	730	730	712	270	166	100									

## USE OF CHART

TO DETERMINE IF A PACKAGE 12x20x140 CAN BE LOADED THROUGH THE FORWARD CARGO HATCH. LOCATE THE 12 AND 20 DIMENSIONS IN THE LEFT VERTICAL AND TOP HORIZONTAL ROWS OF FIGURES ON CHART. THE INTERSECTION OF ROWS GIVES THE MAXIMUM LENGTH PACKAGE OF THIS CROSS SECTION WHICH CAN BE LOADED—IN THIS CASE 152 INCHES. SINCE THE PACKAGE BEING CHECKED IS 140 INCHES LONG, IT CAN BE LOADED.

## EFFECTIVE ON 38TH C-97A

## FORWARD UPPER CARGO DOOR

INCHES															
	6	12	18	24	30	36	42	48	54	60	66	72			
6	714					714	667	611	557	529	431	291			
12	578	564	546	517	499	471	439	414	383	338	246				
18	564	419	409	396	379	365	347	328	309	280	214				
24	546	409	327	319	309	298	286	273	254	238	190				
30	517	396	319	267	261	252	244	234	225	208	171				
36	714	499	379	309	261	225	219	213	205	198	181	157			
42	667	471	365	298	252	219	194	189	183	177	167	144			
48	611	439	347	286	244	213	189	170	166	161	153	131			
54	557	414	328	273	234	205	183	166	152	148	141	117			
60	529	383	309	254	225	198	177	161	148	135	128	113			
66	431	338	280	238	208	181	167	153	141	128	117	107			
70	372	288	253	219	193	174	158	145	133	121	110	101			
72	291	246	214	190	171	157	144	131	117	113	107	92			
76	282	239	207	184	166	151	139	125	112	107	101	83			

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**SUPPLEMENTAL****PACKAGE DIMENSIONS****AFT CARGO HATCH**

INCHES

	4	8	12	16	20	24	28	32	36	40	42
4	155	155	155	155	155	155	155	155	150	125	125
8	155	130	130	130	130	130	125	125	125	100	100
12	155	130	110	110	110	110	105	105	105	85	85
16	155	130	110	95	95	95	95	95	95	70	70
20	155	130	110	95	85	85	80	80	80	65	65
24	155	130	110	95	85	70	70	70	70	55	55
28	155	130	110	95	85	70	55	55	55	45	45

**FORWARD CARGO HATCH**

INCHES

	4	8	12	16	20	24	28	32	36	40	42
4	168	168	167	167	167	166	166	166	166	90	72
8	168	166	166	166	165	163	164	164	164	90	72
12	167	166	166	166	165	163	164	164	164	90	72
16	167	166	166	166	165	163	164	164	164	90	72
20	167	166	166	166	165	163	164	164	164	90	72
24	166	165	165	165	164	163	164	164	164	90	72
28	166	164	164	164	163	163	164	164	164	90	72

**AFT ENTRY DOOR**

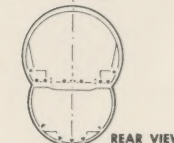
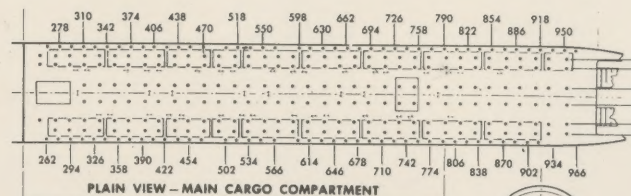
INCHES

	4	8	12	16	20	24	28	32	34
4	200	200	200	200	200	200	185	160	150
8	200	200	200	200	200	180	160	145	130
12	200	200	190	180	165	155	140	130	115
16	200	200	180	155	145	135	125	115	110
20	200	200	165	145	125	120	115	105	95
24	200	180	155	135	120	110	105	95	90
28	185	160	140	125	115	105	95	90	80
32	160	145	130	115	105	95	90	80	70
36	140	125	115	105	95	90	85	75	
40	120	120	110	100	90	85	80	65	
44	120	110	100	90	85	80	70		
48	100	95	90	85	80	75	60		

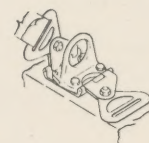
**FORWARD ENTRY DOOR**

INCHES

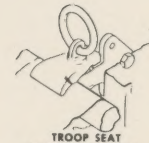
	4	8	12	16	20	24	28	32	34
4	214	214	214	214	214	214	210	180	160
8	214	214	214	214	214	214	210	150	135
12	214	214	190	190	180	170	170	130	120
16	214	214	190	140	130	125	120	115	110
20	214	214	180	130	120	115	110	110	105
24	214	214	170	125	115	105	100	95	95
28	210	210	170	120	110	100	95	90	85
32	180	150	130	115	110	95	90	80	80
36	140	130	110	100	100	90	80	75	70
40	130	110	110	100	95	85	70	65	65
44	120	110	100	95	90	80	70	60	60
48	100	80	70	70	70	65	60	55	55
52	90	80	70	50	50	50	40	40	40

**CARGO COMPARTMENT—FORWARD & AFT****TIE DOWNS**

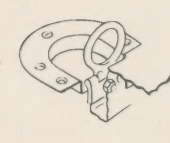
⊙ ENGINE CRADLE  
FITTING WITH  
EYEBOLT  
(Ultimate strength  
6000 pounds normal  
to floor plus  
3000 pounds parallel  
to floor when  
eyebolt is used)



SAFETY BELT  
AND CARGO  
TIEDOWN FITTING  
(Ultimate strength  
200 pounds in  
any direction)



▲ TROOP SEAT  
★ CARGO TIEDOWN  
FITTING  
(Ultimate strength  
1250 pounds  
normal to floor  
plus 500 pounds  
parallel to floor  
in any direction)



▲ CARGO TIEDOWN  
(Ultimate strength  
200 pounds in  
any direction)



STANDARD  
CARGO TIEDOWN  
FITTING AND STUD  
(Ultimate strength  
1250 pounds  
normal to floor  
plus 500 pounds  
parallel to floor  
in any direction)



□ LITTER SUPPORT  
STRAP FITTING  
(Used only when  
litters are installed)